

Appl. No. 10/659,704

Amdt. Dated: September 28, 2004

Reply to Office Action of: 06/28/2004

Amendments to the Specification

Please replace paragraph [0006] with the amended replacement paragraph [0006]:

[0006] According therefore to the present invention there is provided a hydraulic motor comprising a housing having a fluid inlet, a fluid outlet and a cavity therebetween. A pair of intermeshing gear elements are rotatable in the housing about mutually parallel axes. Each of the gear elements have a set of gear teeth disposed about the periphery of the element and a support shaft extending from oppositely directed end faces of the set of gear teeth. A bearing assembly is located on opposite sides of the cavity in the housing to support the shafts for rotation about respective ones of the axes. Each of the bearing assemblies has a sealing face overlying the end faces and biased into engagement with the end faces by a pressure compensating seal located between the bearing and the housing. The sealing face has a channel extending partially about the ~~spindle shaft~~ and a fluid communication with the inlet to introduce fluid under pressure between the faces.

Please replace paragraph [0016] with the amended replacement paragraph [0016]:

[0016] As can better be seen in Figure 2, the seal 56 and bearings 46, 48 are located within the cavity ~~[[42]]~~ 14 so that the sets of gear teeth 36, 38 are inter-engaged for conjoint rotation. One end of the shaft 42 projects through a bore in the end cap 18 and is sealed by a shaft seal 62.

Please replace paragraph [0017] with the amended replacement paragraph [0017]:

[0017] Referring once more to Figure 3, and to Figure 4, the end face 50 of each of the bearings is formed with a channel 64 that extends from a groove 66 in opposite directions about each of the shafts 40, 42. The groove 66 opens onto the high pressure side of the motor 10, that is in fluid communication with the inlet 26, and the channel 64 extends partially about the shaft and terminates prior to the lower pressure zone adjacent the outlet 27. In the preferred embodiment, the channel 64 is located between the root diameter 35 and major diameter 37 of

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the tooth and in the embodiment shown is centred on the pitch circle 39 of the gear sets 36, 38 so as to be partially covered by each tooth of the gear. The channel 64 extends over an arc in the order of 165° to 220° although in general, the arc should extend sufficiently about the shaft to terminate just prior to the connection of fluid contained within adjacent gear teeth with the low pressure zone hydraulically connected to the outlet. In one embodiment, the channel ~~[[50]]~~ 64 extends 55° beyond a line joining the centres of rotation of the shafts 40, 42, indicated by the arc in Figure 4 so as to terminate prior to the point at which the housing and gear teeth separate adjacent the outlet 27. The width of channel 64 is selected to provide sufficient area to counter balance the forces imposed by the pressure compensated seal 56 and, in a particular embodiment tested, a width of between 0.8 mm and 1.1 mm extending on a radius between 12.7 mm and 13.0 mm over an arc of 220° measured from the root of the groove 66 provided a effective surface area of 74 mm². The depth of the channel 64 was 1.5 to 1.0 mm.

Please replace paragraph [0019] with the amended replacement paragraph [0019]:

[0019] As may be seen from Figures 4 and 5, the location of the ~~groove~~ channel 64 between the root diameter 35 and major diameter 37 of the tooth permits the fluid to flow between the faces of the teeth 36, 38 and the end face 50 to provide lubrication to each of the teeth 36, 38. A location on the pitch circle 39 diameter has been used in testing.